



Mathematical minds

Cheryl Praeger*

Gazette: What lead you to become a mathematician?

Praeger: I discovered at high school that I really liked mathematics. Of course I was scared by the examinations, but I loved problem solving and I loved seeing the applications in physics to explain what was happening in the world. I really didn't know that someone in the then 20th century could actually be a mathematician — I didn't know that there were any jobs [for mathematicians]. So for me it was a matter of having the luxury and privilege of continuing to learn mathematics without any expectation that I would continue to do mathematics throughout my life. So I've been really lucky; it was something I really enjoyed doing, and it's turned into a career.

However, I needed enough confidence to do mathematics at university. Secretly, I thought that if 'something happened' in a statewide mathematics competition that I entered, I would then be determined and go for it. I tied for first-place in the Queensland Mathematics Teachers competition, in the year before I started university, and that gave me the confidence to decide that I would study maths.

Gazette: So there was an issue of confidence at the beginning?

Praeger: Oh definitely. I felt that I was a big fish in a small pond. I wondered whether the fact that I was performing well at school would have any bearing on whether I could continue to be successful doing mathematics at university.

Gazette: What area of maths do you work in?

Praeger: My research interests are in algebra, specifically group theory. And I apply this in a lot of different areas, such as graph theory, or experimental design as used in statistical experiments, for example, in agriculture.

Gazette: In your mathematical career have you encountered any difficulties because you were a woman?

Praeger: I think early on in my career definitely. I was married just before taking up a short-term lecturing position at the University of Western Australia, and my husband was also working at that university. There were assumptions made about

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us — that I couldn't possibly want a permanent job if my husband didn't have one — without asking me about it. Whereas having one permanent job between the two of us would have been quite a welcome security for us! So there were problems in getting tenure.

Some years later when we had two young children, I was appointed to the Chair (professorship) in mathematics. Several years after that, one of my colleagues said: 'Do you think you'll keep working?' At that stage, I thought I had got through the most difficult time of keeping my career going while having the family that I really very much wanted.

Gazette: How have you tackled these kinds of assumptions that people have made about you?

Praeger: I suppose I'm a very stubborn, determined person though it might not be evident upon meeting me! I think what helped was perseverance, grasping opportunities, and trying to make things easier for other people.

Gazette: Now that you are much further along in your career, do you think that it is easier for women to be mathematicians these days?

Praeger: I think it's easier for women to envisage a career in mathematics teaching, research or applying mathematics in industry. Certainly there is a much wider demand for mathematics throughout the business world. So it is a more open and inviting possibility.

Within academia I think that, yes, there are more possibilities but it is still difficult for any young person looking for a job in academia. I don't know if it is more difficult for a woman.

Gazette: You've lead a very distinguished career. As well as your research you have also held many positions within the University and organisations outside of it, such as being a member of the Prime Minister's Science Council, and on the Executive Committee of the International Mathematical Union (IMU). What's been the highlight of your career so far?

Praeger: All of those are highlights! Receiving the Order of Australia in 1999 was very exciting; it was so completely unexpected.

I found that special things have happened simultaneously with my acceptance of administrative duties within the university and other mathematical activities. For example, I accepted appointment as Head of Department at the same time as I was President of the Australian Mathematical Society. And then a few years later I accepted appointment as the inaugural Dean of Postgraduate Studies at my university, to set up that position, and in the same year I was elected a Fellow of the Australian Academy of Science. And the year that I was appointed a Member of the Order of Australia, was the same year that I accepted the Chair of the University's Promotions and Tenure Committee. So all of these new university

responsibilities seemed to coincide, without any planning, with a lot of new mathematical roles. And the most wonderful thing that has now happened, is that my four-year term on the IMU Executive Committee is coinciding with my term as an Australian Research Council Federation Fellow, which takes me out of teaching responsibilities for a few years, and therefore allows me to fulfill the responsibilities and the extra travel I need to make for the IMU.

So there's been a lot of wonderful highlights — I don't know how to choose just one!



Cheryl Praeger is Winthrop Professor of Mathematics at the University of Western Australia, and in 2007 she became the first pure mathematician to be awarded an Australian Research Council Federation Fellowship. For her achievements and service to mathematics, she was elected a Fellow of the Australian Academy of Science, and appointed a Member of the Order of Australia (AM). She was President of the Australian Mathematical Society from 1992 to 1994, and is currently on the Executive Committee of the International Mathematical Union.